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ABSTRACT

Simulation--a teaching strategy which enables students to vicariously test both their powers of observation and decision making abilities--is suggested as a device to prepare students for the rapid changes they are likely to encounter as adults. Guidelines are offered for developing classroom simulations in this paper. Social and cultural topics projected into the future are the basis for these simulated exercises. The flexible nature of a simulation enables students to gain expertise in dealing with future situations and allows them to establish a pattern of response for coping with possible future events. (JD)

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STUDENT DESIGNED SIMULATIONS: AN IN-CLASS OPPORTUNITY TO EXPERIENCE THE FUTURE TODAY

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INTRODUCTION

The theme of this paper is 'effective teaching." Redfield felt that teaching could be considered 'effective' when students were capable of adapting well, as adults, to their social environment.[1] To accomplish this goal in a world that is rapidly changing, both physically and culturally, a teacher must encourage the student to interact not only with current and specific change, but with the concept of change. It will be suggested that 1) familiarity with change will reduce its intimidating factor, and 2) opportunities to interact with new and even imagined situations will enable the student to develop the ability to deal with new concepts and situations in a positive manner.

SETTING

Today a national interest in the performance record of the students is escalating. One concern is the apparent inability of many of those who have successfully completed an

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[1]Redfield, R., The Social Uses of Social Science. Chicago: University of Chicago Press, 1963.

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academic program to function well in the everyday 'real' world. The concern extends to current students who question the informational content and instructional methodology of their programs.

Charges and countercharges related to this undesirable situation appear in professional journals and serve as lead stories for the public media. One frequently cited accusation is that the teachers are not doing their jobs. It is said that they are not being effective.

A resulting interest in effective teaching has generated a reaction among all levels of the academic world. On every plateau, seminars on 'teaching and the problem of effectiveness' have become popular agenda additions when professionals meet. Few conferences omit a reference to the desirability of new and improved approaches to information transfer. It has been stressed that the strategies to be devised take into account the rapid pace of both physical and social change occurring today. In addition, these strategies must be of such a design that they prepare the student for a world that currently does not exist. "Other generations believed that they had the luxury of preparing their children to live in a society similar to their own. Ours is the first generation to have the Socratic wisdom of knowing that we do not know the world in which our children will live."[2]

Simulation--a teaching strategy which enables students to vicariously test both their powers of observation and decision-

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[2]R. W. Hostrop (ed.), Foundations of Futurology in Education. Homewood, Ill.: ETC Publications, 1973, p. 217.

making abilities--has been suggested as a device to prepare students for the rapid change they are likely to encounter as adults.

WHAT ARE SIMULATIONS?

Simulations are models of physical or social realities. Simulations are dynamic in that they involve people in behavior similar to that found in real life situations. Either all or part of the behavior found in reality may be represented by the model and performed in simulations.

An example of a simulation is the 'link-trainer,' developed in 1929 by Edwin Link and used by the RAF. Parts of an aircraft cockpit were placed in a classroom setting and pilot-trainees practiced decision-making and skill-improving options in a no-risk environment. A recent example of simulation use was the development of the Lunar Training Module. This device permitted astronauts the opportunities to train with relative safety prior to the Apollo moon missions. The astronauts were exposed to real as well as possible situations.

A simulation can, then, be viewed as an attempt to combine the world of instruction--the world of telling, with the "real" world--the world of doing. It is in the classroom that the simulation may well serve as a teaching strategy to prepare the student for the future. The simulation possesses the potential of multiple selections. As conditions of preceived realities change, the selection of elements from that "new" reality need not remain static. They can also vary. The suggestion that the curricula of the seventies contain the facts of the fifties and therefore develop in the student an awareness of the past but little or no

vision of the future and its choices must be considered.[3] The simulation, through a varying of the elements selected, can approximate possible future realities. The student, thus, through non-risk interaction with the elements of the model, gains expertise in dealing with the unknown.

CLASSROOM SIMULATIONS

Response to the suggestion that simulations can be used in the classroom and can enhance effective teaching is rarely positive. Teachers frequently state that simulations are too expensive, consume vast amounts of time, are difficult to design, and defy evaluation.

A different perspective is advanced by many users of classroom simulations. Those who have participated in, and/or designed classroom simulations reply that simulations designed for classroom use require little or no equipment; can be 'run' and debriefed within a single class period; can insure a high participant-to-observer ratio; require only brief indoctrination for the designer; can be related to the specific objectives of the instructor; and are easy to redesign as objectives change or student profile is altered. By observing the simulations, the instructor can gain information relating to progress students are making toward understanding concepts covered by other teaching strategies. Too, simulations increase the opportunities for students to interact with real and imagined

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[3]Kaufmann, D. L., Jr., Teaching in the Future. Palm Springs, California: ETC Publications, Inc., 1976, p. 4.

situations involving crises and conflicts with little fear of harm. Simulations can also telescope time, thus enabling many interactions in a relatively short period of time.[4] They permit a varying of sequences by changing the order of interaction. Most importantly, simulations designed for classroom use enable the participants and observers to internalize, via actions and emotions, concepts that normally must only be experienced intellectually.

STUDENT-DESIGNED CLASSROOM SIMULATIONS

To demonstrate the ease of simulation design and activation, students taking 'Sociology and the Future of Society', a course taught in January, 1979, designed their own simulations of a current social situation projected into the future. This assignment had two goals. It was intended to 1) provide the students in the class the opportunity to vicariously experience the 'future', and 2) permit testing of the 'Societal Analysis Framework' for simulation design. This design format was patterned after the components of an ethnography, i.e., the parts of a written account of a society.[5]

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[4]Spangenberg, R. W., "Selection of Simulation As An Instructional Medium." Paper presented to the Society for Applied Learning Technology, Washington, D.C., July, 1976.

[5]A Committee of the Royal Anthropological Institute of Great Britain and Ireland (eds.), Notes and Queries on Anthropology, (6th ed.) (London: Routledge and Kegan Paul Ltd., 1951), p. 63-97.

WHAT IS THE 'SOCIETAL ANALYSIS FRAMEWORK' FOR SIMULATION DESIGN?

The 'Societal Analysis Framework' consists of the components essential to analyzing society. These essential components are:

1) Territory: the physical confines of the classroom, adjacent rooms and all furnishings and people present;
2) Composition: the organization of furnishings and people in the territory;
3) Membership requirements: the characteristics needed by people/groups in the simulation in order that the simulation's objectives be met;
4) Modes of Conduct: the behavior individuals/groups are asked to perform to get across simulation objectives. These behaviors will often be gross exaggerations of normal behavior to dramatize the points the designer intends; and
5) Function: purpose of the simulation.

Simulations which result from the use of the 'societal analysis framework' will contain the essential components of society and possess a high degree of isomorphism to that society. The responses of participants who interact with such a simulation should approximate responses of participants in real life.

HOW ARE CLASSROOM SIMULATIONS DESIGNED?

The 'Societal Analysis Framework' permits quick and easy construction of simulations. The designers need only determine their objectives and then respond to the set of questions assigned to each component of the design framework described above. The answers

to these questions will result in the determination of space to be used; the appropriate groupings of people and furniture in that space; the rules for involvement of groups in the simulation; the behavior expected of groups--both on an individual and a joint basis during the simulation; and a listing of the objectives to be reached. The specific questions for each component are:

Territory: What is the size of the room? What type and how much furniture is present? How many students are present? Are there areas near the classroom that can be used for the simulation?

Composition: How should the people and furnishings be arranged to facilitate the reaching of your objectives? What groups should be formed to facilitate your objectives?

Membership Requirements: What characteristics (ex. age, sex, occupation, social class, etc.) do individuals and groups need to get across the objectives of the simulation? What characteristics will determine whether individuals/groups continue to be part of the simulation? What characteristics will determine removal of individuals/groups during the 'running' of the simulation? What characteristics will result in the exclusion of individuals/groups from the simulation?

Modes of Conduct: What behaviors will result in easy identification of individuals/groups? What identifying behaviors will best facilitate reaching simulation objectives?

Function: What is the simulation designer trying to accomplish? What are the simulation participants trying to accomplish?

EXAMPLES OF STUDENT-DESIGNED CLASSROOM SIMULATIONS

Topics of classroom simulations designed by students with the future as base have included: Families, Suicide, International Health Care, Energy and Government Control, Government Swapping, Mind Control, Spatial Arrangements, Urban Planning, and Food of the Future.

SUMMARY

The value of classroom simulations as effective teaching strategies for faculty and students are multiple: 1) the classroom simulation, by enabling the student to interact with the selected elements of reality, enhances the often unactivated physical dimensions of learning,[6] 2) the classroom simulation, because of the flexible nature of its selection of model elements, provides the opportunity for participants--students and faculty--to gain expertise in dealing with the unknown (the future) as well as the known (the past and the present); that is, a pattern of response is developed to deal with future or possible future events; and 3) the imposition of the "universal design" with its five components as the mandated framework for

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[6]J. Huizinga, Homo Ludens. Boston: Beacon Press, 1950.

all models guarantees that the classroom simulation will a) contain essential isomorphic elements of whatever reality is chosen as referent system for the model and b) provide a standard for comparison of method and effect.